UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,378	06/08/2001	Michael Nelson	Vmware 10	2444

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VMWARE, INC
ATTN: JEFFREY PEARCE
3145 PORTER DRIVE
PALO ALTO, CA 94304

EXAMINER
TRUONG, LECHI

ART UNIT	PAPER NUMBER
2126	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/877,378	MICHEAL NELSON
	Examiner	**Art Unit**	
	LeChi Truong	2126	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>05 October 2004</u>.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-45* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *4-11,13-20,25-27,30-32,34-40,44 and 45* is/are allowed.

6) ☒ Claim(s) *1-3, 12, 21-24, 28, 29, 33 and 41-43* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All b) ☐ Some * c) ☐ None of:

　　　1. ☐ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

　　a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   Claims 1-24 are presented for the examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims **1-3, 24, 28, 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bonola (US. Patent 5,913,058) in view of Sato et al (US. Patent 4,835,677).

3.   **As to claim 1,** Bonola teaches the invention substantially as claimed including: hardware

processor (the I/O processor, col 3, ln 9-22/ col 4, ln 45-55, col 5, ln 1-20), a first operating

system (the host processor, col 3, ln 9-22/ col 4, ln 45-55, col 5, ln 1-20), a most privileged,

system level/ direct access col 2, ln 25-27), initializing the computer (boot time, col 5, ln 1-7/ col

7, ln 57-61/ col 9, ln 62-67 to col 10, ln 3-10/ col 2, ln 65-67), a kernel (the real-time kernel, col

3, ln 9-22/ col 4, ln 45-55, col 5, ln 1-20), a second operating system(col 9, ln 39-44), loading

the kernel(loads the real-time kernel, col 3, ln 9-21), starting execution of the kernel(the real-

time kernel to be loaded into the system memory and executed on the I/O processor prior to the

host operating system, col 3, ln 10-21), handed request for the system resource(col 5, ln 15-22).

4.   Bonola does not explicit teach the kernel substantially displacing the COS, via the kernel,

including scheduling execution of the COS on the hardware processor. However, Sato teaches

the kernel substantially displacing the COS, via the kernel, including scheduling execution of the

COS on the hardware processor (the first operating system being provided with access to said

first control registers by the supervisory operating system; the supervisory operating system

writing a first value in the register indication bit of said extended control regirster when the first

operating system run, col 3, ln 57-61 / ln 65-67 to col 4, ln 1-2/ col 2, ln 34-40/ ln 49-ln 50-51 /

ln 55-58 and abstract ln 8-13)..

5.   It would have been obvious to one of the ordinary skill in the art at the time the invention

was made to combine the teaching of Bonola and Sato because Sato's the kernel substantially

displacing the COS, via the kernel, including scheduling execution of the COS on the hardware

processor would reduce the overall overhead time of the system when the hardware can be

accessed directly by the operating system.

6.   **As to claim 2**, Bonola teaches a load call module (the loader program 32, col 7, ln 37-

45), the load module (col 8, ln 9-15).

7.   **As to claim 3**, Bonola teaches the load call module as a driver (col 7, ln 40-43).

8.   **As to claim 24**, Bonola teaches halting execution of the kernel (col 8, ln 31-32),

reinstalling a state of the first operating system, resuming execution of the first operating system

(col 7, ln 12-21), the kernel is removed from the computer (the kernel from the storage device is

moved to the system memory, col 15-18/ 25-30).

9.   **As to claims 28, 29**, they are apparatus claims of claims 1, 2; therefore, they are rejected

for the same reasons as claims 1, 2 above.

10.   Claims 12, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonola

(US. Patent 5,913,058) in view of Sato et al (US. Patent 4,835,677) and further in view of

Admitted Prior Art (APA).

11.   As to claim 12, Bonola and Sato do not teach virtual machine, a virtual machine monitor.

However, APA teaches virtual machine, a virtual machine monitor (virtual machines, virtual

machine monitor, col 2, ln 4-11).

12.   It would have been obvious to one of the ordinary skill in the art at the time the invention

was made to combine the teaching of Bonola, Sato and APA because APA's virtual machines,

virtual machine monitor would made the computer configuration for resource management more

consistent.

13.   As to claim 33, it is an apparatus claim of claim 12; therefore, it is rejected for the same

reason as claim 12 above.

14.   Claims **21, 22, 41, 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bonola (US. Patent 5,913,058) Sato et al (US. Patent 4,835,677) in view of Admitted Prior Art

(APA) and further in view of Bugnion et al (6,017,938).

15.   As to claim 21, Bonola, Sato and APA do not teach mapping a kernel address space into

a VMM address space. However, Bugnion teaches mapping a kernel address space into a VMM

address space (Disco provides ... this organization was selected to match the assumptions made

by the operating system, col 9, 50-53).

16.   It would have been obvious to one of the ordinary skill in the art at the time the invention

was made to combine the teaching of Bonola, Sato, APA and Bugnio because Bugnio's Disco

provides ... this organization was selected to match the assumptions made by the operating

system would provide the operating system execute on the plurality of virtual machines and

transparently share the plurality of computer processors through the VMM layer.

17.   As to claim 22, Bagnio teaches the setting a segment length for the VMM lager than a

minimum length necessary to fully contain both the VMM and the kernel (col 10, ln 37-43), free

of the any need to change a corresponding segment (col 10, ln 44-50).

18.   As to claims 41, 42, they are apparatus claims of claims 21, 22; therefore, they are

rejected for the same reasons as claims 21, 22.

19.   Claims **23, 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonola

(US. Patent 5,913,058) in view of Sato et al (US. Patent 4,835,677) in view of Admitted Prior

Art (APA) and further in view of Subrahmanyam (US. Patent 6,735,601 B1).

20.   As to claim 23, Bonola, Sato and APA do not teach virtual disk, virtual disk block

pointer, and a file descriptor table storing block identification. However, Subrahmanyam teaches

(VDIK/ virtual disk, col 14, ln 60-67/ Fig. 4, block pointer, block hash table, col 15, ln 39-47).

21.   It would have been obvious to one of the ordinary skill in the art at the time the invention

was made to combine the teaching of Bonola, Sato, APA and Subrahmanyam because

Subrahmanyam's VDSK/ virtual disk, block pointer, block hash table would allow the server to

relocate the various blocks according to its own needs using its native algorithms.

22. **As to claim 43**, it is an apparatus claim of claim 23; therefore, it is rejected for the same reason as claim 23 above.

Allowable Subject Matter

24.   Claims **4-11, 13-20, 25, 26, 27, 30-32, 34-38, 39-40, 44, 45** are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LeChi Truong whose telephone number is (703) 305 5312. The examiner can normally be reached on 8 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 703-305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR of Public PAIP. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIP system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

LeChi Truong

December 6, 2004

MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100